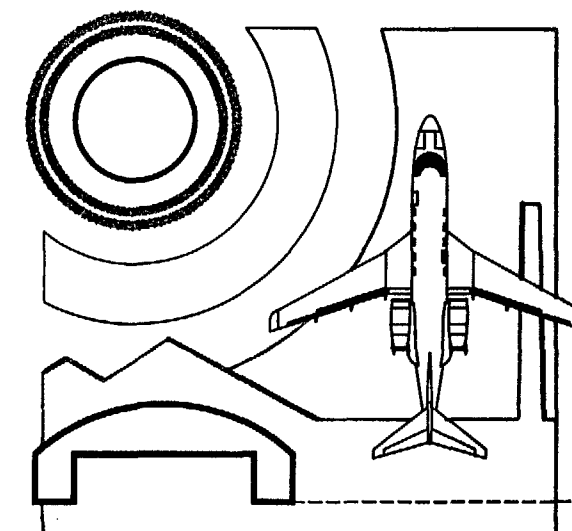
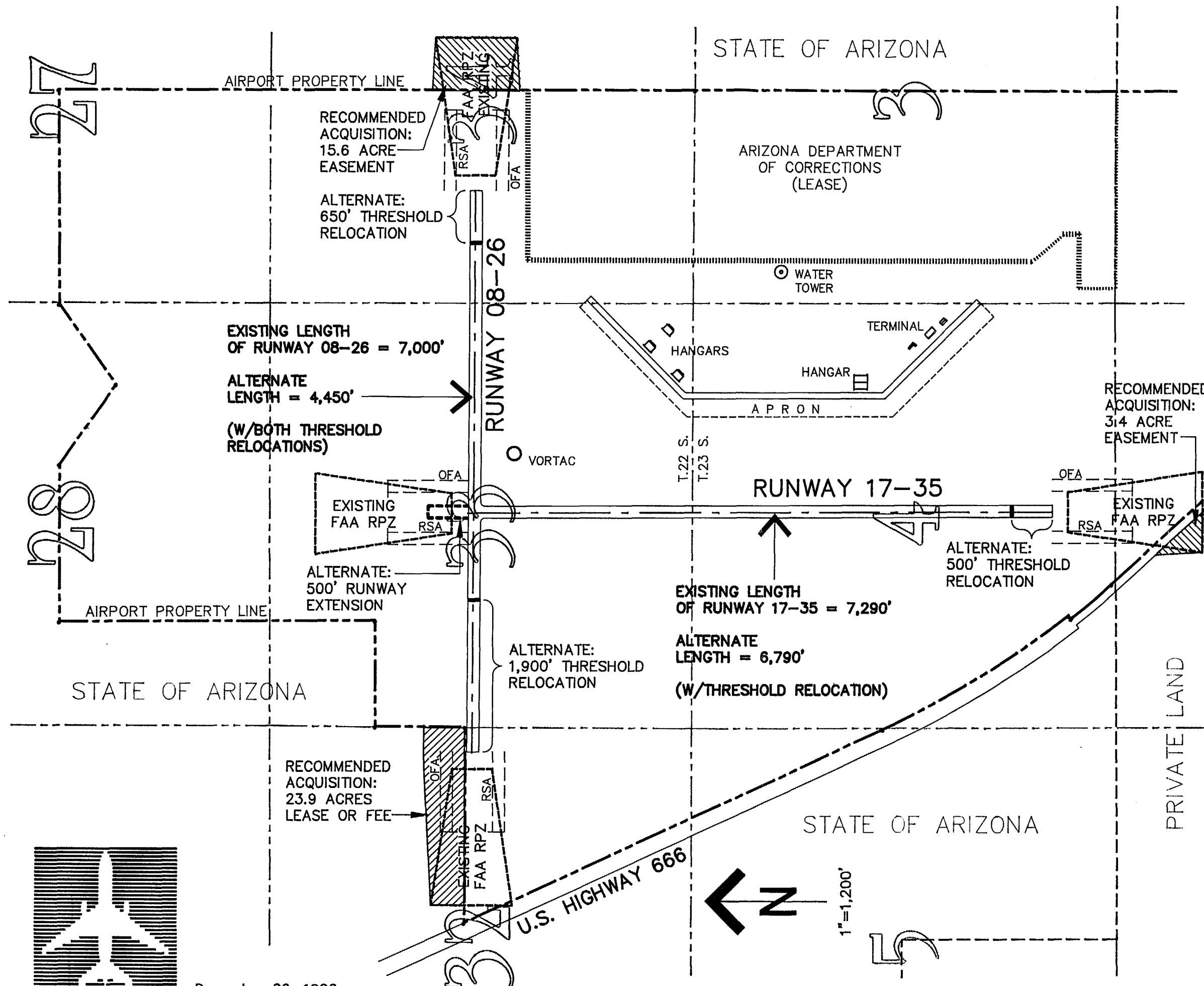


## **SECTION 5: STANDARDS COMPLIANCE**



**BISBEE-DOUGLAS  
INTERNATIONAL AIRPORT**

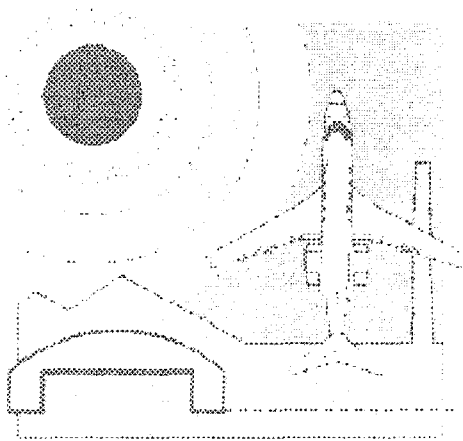
NOTE: ALL ACQUISITIONS ARE BASED UPON PROTECTION OF FAR PART 77 APPROACH AND TRANSITIONAL SURFACES EXTENDING TO 50' ABOVE GROUND LEVEL.

----- INDICATES LIMITS OF ADJOINING STATE LANDS

..... INDICATES LIMITS OF ADOC LEASE (PRISON SITE)

**Recommended  
Land Acquisitions  
(Existing Condition)**

**Figure 5-1**



## BISBEE-DOUGLAS INTERNATIONAL AIRPORT Douglas / Cochise County, Arizona

### AIRPORT MASTER PLAN - 1997

## SECTION 5: STANDARDS COMPLIANCE

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### DEFINING CRITERIA

This Section of the Master Plan study consists of definition of any existing conditions which are in noncompliance with applicable Federal Air Regulations or Advisory Circulars. FAA Advisory Circular AC 150/5300-13, Airport Design, and Federal Air Regulations (FAR) Part 77, Objects Affecting Navigable Airspace are the two primary reference criteria for the determinations made in this Section.

FAR Part 77 establishes the standards for determining obstructions in navigable airspace. In this Section, the Part 77 standards were applied only to a height of fifty (50) feet above ground level (AGL) to the land immediately adjacent to the airport in order to determine the limits of land which should be acquired by the airport in order to protect the present runway approaches. The Airport Layout Plan development process will define the full FAR Part 77 limits and recommend land use controls which extend further than those considered in this Section's analysis.

The Part 77 criteria was combined with the design criteria contained in FAA AC 150/5300-13, which defines the various airport protected areas and runway setback limitations.

The primary areas defined in the AC which apply to BDI in its current configuration include the Runway Protection Zone (RPZ), the Object Free Area (OFA), and the Runway Safety Area (RSA). These surfaces and the general requirement which pertain to each are described in the following narrative.

Figure 5-1, included at the end of this Section, illustrates the required protected areas and recommended alternative actions which are discussed below.

ANALYSIS

In this Section, it was assumed that the BDI Airport is currently an FAA ARC C-II airport serving some aircraft over 12,500 pounds, with two active runways (17-35 and 8-26) and a nonprecision instrument approach to a one mile visibility minimum. This is in conformance with the findings of the inventory, aviation activity forecasts and airport demand/capacity analysis (Sections 2, 3 and 4 of this study).

A review of the present conditions at BDI reveal very few noncompliance items. Because the airport was initially designed to accommodate large 1940's-era bombers and military transports, the runway, apron, building setbacks, and taxiway separations are more than adequate for the present use. Current runway lengths are also adequate to serve the present traffic demands.

The only apparent deficiencies, in terms of compliance with the noted safety standards, involve the control of adequate adjoining land to protect the approaches to Runways 35, 8 and 26. Research of available airport records indicated that there are no present aviation easements or specific airspace zoning which will protect these approaches.

Runway Object Free  
Area (OFA) -  
AC 150/5300-13

The Runway OFA is a rectangular area, centered on the runway and extending beyond each runway end a specified distance. The dimensions of the OFA depend upon the runway's use and design classification.

The BDI Airport, with its current use and configuration, requires Runway OFA's which are 800' in width and extending at least 1,000 feet beyond the runway ends of each active runway. It is the consultant's recommendation that the OFA be located on land either owned in fee or controlled by a renewable long term lease.

The OFA must be kept clear of all above-ground objects which protrude above the runway threshold elevation. Although the OFA may be used for essential electronic and lighting aids and for taxiing aircraft, it may not be used for nonessential purposes, including aircraft parking and agricultural operations.

All existing OFA's at BDI are presently in compliance with the FAA clearing requirements, except for the existence of desert brush and vegetation, some of which may constitute a hazard.

Runway Protection  
Zone (RPZ) -  
AC 150/5300-13

The OFA's at the approach ends of Runways 17, 35 and 26 are fully contained within the current airport property line. However, about half the width of Runway 8's OFA would overlap onto adjacent land which is currently owned by the State of Arizona (see Figure 5-1). Research of airport records indicated that this adjacent land was at one time leased by the airport from the State. However, the lease was allowed to expire.

The RPZ's function is to enhance the protection of people and property on the ground, through airport control of a defined clear area adjacent to the runway approach threshold. The RPZ is trapezoidal in shape and centered about the extended runway centerline.

While it is desirable to clear all objects from the RPZ, the FAA does permit some uses provided that they do not attract wildlife, are outside the OFA, and do not interfere with navigational aids. Permitted uses include golf courses (not club houses), as well as agricultural operations other than forestry or livestock farms. Land uses which are prohibited inside the RPZ include residences, churches, schools, hospitals, office buildings, shopping centers, and other places of public assembly.

RPZ's for BDI Airport in its present configuration (classification of ARC C-II with nonprecision approach to one mile) should be 1,700 feet in length, with an inner width of 500 feet and an outer width of 1,010 feet.

No nonconforming land uses currently exist within the BDI Airport's existing RPZ's.

The RPZ at the approach end of Runway 17 is fully contained within current airport property. The RPZ's for Runways 35, 8 and 26, however, are not (see Figure 5-1). The Runway 35 and 26 RPZ's may be protected by acquisition of avigation easements which will encompass at least the RPZ limits. The easements should provide land use control over the RPZ.

About half of the RPZ at the approach end of Runway 8 overlaps onto adjacent land owned by the State of Arizona. The limits of the RPZ should be included in a long term renewable lease over this land.

Runway Safety Area  
(RSA) -  
AC 150/5300-13

The RSA is another, more restrictive, rectangular area which is similar in function to the OFA. AC 150/5300-13 specifies that the RSA *"shall be cleared and graded and shall have no potentially hazardous ruts, bumps, depressions, or other surface variations"*, and that it shall be *"drained by grading or storm sewers to prevent water accumulation... capable, under dry conditions, of supporting... aircraft rescue and fire fighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft"*. The AC also specifies that the RSA must be *"free of objects, except for objects that need to be located in the (RSA) because of their function"*. Any object in the RSA which is over 3 inches above ground must be constructed on low impact resistant supports (frangible mounts).

All existing RSA's at BDI are presently in compliance with the FAA clearing requirements, except for the existence of desert brush and vegetation, some of which may constitute a hazard.

In its current configuration, the RSA's for BDI should be 500 feet wide and extend 1,000 feet beyond the end of each currently active runway.

In all cases, the RSA is encompassed by the limits of the OFA as described above. Easements and leases should include the right of the airport to maintain the RSA to the criteria as defined in AC 150/5300-13.

FAR Part 77 Primary,  
Approach and  
Transitional Surfaces

FAR Part 77 defines several three-dimensional surfaces which must not be penetrated by any manmade or naturally-occurring object. The surfaces which pertain to this Section's analysis include the *Primary Surfaces*, *Approach Surfaces*, and *Transitional Surfaces*.

The Primary Surface is of a specified width, longitudinally centered on each runway and extending 200 feet beyond each runway end. The elevation of any point on the Primary Surface is the same as the elevation of the nearest point on the runway centerline. The entire Primary Surface should be contained on airport property.

The Primary Surface width for BDI Airport's currently active runways is 500 feet.

The Part 77 Approach Surface is a trapezoidal surface which is longitudinally centered on the extended runway centerline and extending outward and upward from each end of the Primary Surface.

Approach Surfaces for the current BDI runways in the ARC C-II configuration should have an inner width of 500 feet, an outer width of 3,500 feet, and a length of 10,000 feet. The slope of the Approach Surfaces is 34:1, to accommodate aircraft of greater than 12,500 pounds takeoff weight.

The Transitional Surface extends outward and upward at right angles to the runway centerline at a slope of 7:1 from the sides of each of the Primary and Approach Surfaces.

The Part 77 surfaces up to a height of 50 feet should be either contained within airport property, or controlled by adequate avigation easements. Beyond the 50-foot height limit, the surfaces should be controlled by adequate airspace and land use zoning. Recommendations concerning this will be included in the Airport Layout Plan preparation portion of this study.

The Primary Surface for Runway 17-35 is fully contained within the present airport boundary. However, Runway 8-26's Primary Surface overlaps onto the State land mentioned above at the Runway 8 approach end.

Part 77 Approach and Transitional Surfaces to the 50-foot limits for Runway 17 are fully contained on current airport property. Approach and Transitional Surfaces to the 50-foot limits for the Runway 26 and 8 approaches overlap onto the State land mentioned above. A portion of the Runway 35 Approach and Transitional Surfaces to the 50-foot limits overlaps onto adjacent private land.

The lease agreement for the State land adjacent to the Runway 8 approach property should include adequate height limitations to protect the Part 77 approach surfaces. Part 77 surfaces to the 50-foot limits for the Runway 26 and 35 approaches may be controlled by avigation easements with adequate land use and height limitation limitations.

No penetrations of FAR Part 77 surfaces have been noted, with the exception of the existence of a great deal of desert brush and weeds along the runway edges. This constitutes multiple penetrations of the Primary Surfaces for both active runways, but may be easily mitigated by a program of increased maintenance of the airport.

ALTERNATIVES AND  
RECOMMENDATIONS

The following are recommended actions for correction of the above defined deficiencies. In each case, the recommended action is followed by alternative actions which may be implemented if the recommended actions are found to be not feasible.

It is generally recommended that the County prepare and implement an Airspace Zoning Ordinance which will provide specific land use and height limitation controls for all land which is beneath all of the FAR Part 77 airspace. The Airport Layout Plan will include a drawing which defines the limits of this airspace, which may serve as the basis for the zoning ordinance.

Runway 17-35:  
Recommended  
Actions and  
Alternatives.

The Runway 17 RPZ, OFA, RSA and the FAR Part 77 Primary, Approach and Transitional Surfaces (to the 50' limits described above) are encompassed within the present airport property line.

Part of the Runway 35 Approach and Transitional Surface, as well as the RPZ, overlap adjoining private land south of U.S. Highway 666.

**Recommended Action:** Acquire a 3.4 acre avigation easement over the affected land south of U.S. Highway 666 which will restrict land use and provide height limitations to protect the Runway 35 RPZ and Part 77 surfaces.

**RWY 17-35 Alternative 1:** Relocate the Runway 35 threshold 500 feet to the north to bring the RPZ and Part 77 surfaces within the airport boundary. This would reduce the length of Runway 17-35 from 7,290 feet to 6,790 feet.

**RWY 17-35 Alternative 2:** Relocate both the Runway 35 threshold and the Runway 17 threshold 500 feet to the north. This will bring the RPZ and Part 77 surfaces within the airport boundary and maintain the present runway length of 7,290 feet.



Runway 8-26:  
Recommended  
Actions and  
Alternatives.

Portions of the Runway 8 RPZ, OFA, RSA and the FAR Part 77 Primary, Approach, and Transitional Surfaces overlap adjoining land owned by the State of Arizona. In the past, part of the affected land was leased to the airport by the State under a renewable lease agreement. The lease was allowed to expire several years ago, however.

The Runway 26 RPZ, OFA, and RSA are fully contained within the present airport boundary. Part of the FAR Part 77 Approach and Transitional Surfaces, however, overlaps onto adjoining land owned by the State of Arizona.

**Recommended Action:** Acquire fee interest from the State of Arizona in a 23.9 acre parcel directly north of the extended centerline of Runway 8. *and...*

Acquire a 15.6 acre avigation easement over the affected land east of the present airport property line which will restrict land use and provide height limitations to protect the Runway 26 RPZ and Part 77 surfaces.

**RWY 8-26 Alternative 1:** Enter into a renewable long-term lease with the State of Arizona for the 23.9 acre parcel directly north of the extended centerline of Runway 8. *and...*

Acquire a 15.6 acre avigation easement over the affected land east of the present airport property line which will restrict land use and provide height limitations to protect the Runway 26 RPZ and Part 77 surfaces.

**RWY 8-26 Alternative 2:** Relocate the Runway 8 threshold 1,900' to the east to bring the RPZ, OFA, RSA and Part 77 surfaces

within the airport boundary. This would reduce the length of Runway 8-26 from 7,000 feet to 5,100 feet.  
*and...*

Acquire a 15.6 acre avigation easement over the affected land east of the present airport property line which will restrict land use and provide height limitations to protect the Runway 26 RPZ and Part 77 surfaces.

**RWY 8-26 Alternative 3:** Relocate the Runway 8 threshold 1,900 feet to the east to bring the RPZ, OFA, RSA and Part 77 surfaces within the airport boundary.  
*and...*

Relocate the Runway 26 threshold 650 feet to the west to bring the RPZ and Part 77 surfaces within the airport boundary.

The combination of these two threshold relocations would reduce the length of Runway 8-26 from 7,000 feet to 4,450 feet.

The County is strongly urged to pursue the recommended actions as presented above. Any reduction in runway length will also reduce the number of aircraft types which can safely use the BDI Airport.

Future re-extension of a runway, if needed, would require the preparation of an Environmental Assessment, and possibly an Environmental Impact Statement.